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Eric Tischler D.O. Advisor(s): Danielle Casagrande M.D.

Co-author(s): Vinay Bijoor, Daniel Yusupov, Scott Liu, David H. Mai, Jules David Hip-Flores, Rose Park, Carl Paulino, Daniel Wilen, Daniel Caligiuri, Claude Scott

Serum Albumin and its Association with Readmission for Patients Undergoing Total Shoulder Arthroplasty

Introduction:
Serum albumin, a low-cost test, evaluates nutritional status and organ function. It is cited as a predictor of adverse surgical outcomes, morbidity, and mortality. This study examines the relationship between preoperative serum albumin levels and readmission rates in total shoulder arthroplasty (TSA) patients.
Methods:
A retrospective cohort study was performed using the National Surgical Quality Improvement Program (NSQIP) database of TSA cases occurring between 2012-2021. Inclusion criteria was age ≥18 years. Patients were categorized by preoperative albumin levels: severe hypoalbuminemia (<3 mg/dL), mild hypoalbuminemia (3–3.49 mg/dL), normal (3.5–4.49 mg/dL), and hyperalbuminemia (≥4.5 mg/dL). The primary outcome was unplanned hospital readmission within 30 days post-surgery. Potential confounders included basic demographics, baseline health status, and procedure characteristics. Univariate analyses compared cohorts, while multivariable regression examined the link between preoperative albumin and readmission.
Results:
During the study, 18,044 patients underwent TSA. Most in the hypoalbuminemia and normal albumin cohorts were 70–79 years old, female, White, non-Hispanic, independent, ASA class 3, obese, and without smoking history, diabetes, or immunosuppressive therapy. However, the greatest proportion in the hyperalbuminemia cohort aged 60-69 years, male, and ASA class <3 [Table 1].
Multivariable regression, adjusted for confounders, showed increased readmission risk in patients with severe (OR: 2.50, 95% CI 1.50–3.98; p<0.001) and mild (OR: 1.45, 95% CI 1.05–1.98; p=0.021) hypoalbuminemia compared to those with normal albumin [Table 2].
Conclusion:
Patients with low preoperative albumin undergoing TSA have a higher risk of unplanned readmission. Further research on preoperative albumin management and perioperative support for hypoalbuminemic patients may improve outcomes.